IN THE UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF MISSISSIPPI
NORTHERN DIVISION

LATOYA BROWN; et al   PLAINTIFFS

v.   Civ. No.   3:17cv347-WHB-LRA

MADISON COUNTY, MISSISSIPPI; et al   DEFENDANTS

**MEMORANDUM IN SUPPORT OF DEFENDANTS' DAUBERT MOTION AND
MOTION IN LIMINE TO EXCLUDE THE TESTIMONY OF BRYAN RICCHETTI**

Pursuant to Federal Rules of Evidence 104, 401, 403, and 702, Defendants Madison County
and Sheriff Randall C. Tucker, in his official capacity, file this Motion to Strike the Expert Report
and Testimony of Defendants' Expert Dr. Bryan Ricchetti ("Dr. Ricchetti"). In particular, Dr.
Ricchetti's report should be stricken and he should be precluded from testifying as an expert
witness because his analysis is unreliable, is not based on sufficient facts as required under Fed.
R. Evid. 702(b), is not the product of reliable principles and methods as required under Fed. R.
Evid. 702(c), and he has not reliably applied the principles and methods to the facts of this case as
required by Fed. R. Evid. 702(d). As explained by Defendants' rebuttal expert, Dr. Ricchetti's
analysis is severely flawed and scientifically unreliable. (Ex. 3, Dr. Steward's Report, ¶8).   In
fact, likely all the address data Dr. Ricchetti compiled for his analysis is invalid. (Ex. 4, Mr.
Funderburk's Report). Because Dr. Ricchetti's analysis is both irrelevant and unreliable, it will
not assist the Court in determining whether to certify the class in these proceedings.   Fed. R. Civ.
P. 23(b). His report should be stricken and his testimony excluded.

I.   Background

Plaintiffs commenced this class action litigation on May 8, 2017. (Dkt. 1). Plaintiffs assert
civil rights violations under 42 U.S.C. §§ 1983 and 2000d, alleging generally that the Madison

County Sheriff's Department ("MCSD") engages in unconstitutional policing practices that violate the Fourth and Fourteenth Amendment rights of Blacks.   Relevant here, Plaintiffs claim that Madison County roadblocks are "designed and placed to target Black individuals for highly intrusive, pretextual, and suspicion[-]less searches and seizures in Madison County's majority-Black towns, residential neighborhoods, and business districts." (Dkt. 1 ¶4). In support of these allegations, Plaintiffs designated Dr. Ricchetti as their expert to analyze the statistical relationship between roadblock locations and race. (Dkt. 231-1 ¶7; Dkt. 232 at 14-17).

Dr. Ricchetti is an economist with the Cornerstone Research Group, where he specializes in labor and antitrust issues. (Dr. Ricchetti Tr. 20:21-21: 22). He has no prior experience analyzing law enforcement decisions, *i.e.*, the issues raised in these proceedings. (Dr. Ricchetti Tr. 45:14-18). He is not an expert in law enforcement techniques. (Dr. Ricchetti Tr. 159:14-16). Despite this lack of relevant experience, Plaintiffs contend he is competent to analyze law enforcement practices and that his analysis supports their allegation that roadblocks are disproportionately set up in "majority-black neighborhoods" and "rarely, if ever," in White areas. (Dkt. 232, p.14-15). He is the only expert designated by Plaintiffs to show that the MCSD has a policy of intentionally targeting Blacks.

 A.   *Overview of Dr. Ricchetti's Report*

Dr. Ricchetti's report provides his qualifications and assignment (Ex. 1, Ricchetti Report ¶¶1-10); summarizes his findings (Ex. 1, ¶¶7-10); and describes his methodology and data. (Ex. 1, ¶¶ 11-34). Dr. Ricchetti reported that he and his team transformed Madison County Sheriff's Department's ("MCSD") general law enforcement records into datasets that he further transformed in order to conduct a multivariant regression analysis on roadblock locations in Madison County. Dr. Ricchetti contends that he gathered information about 2,004 roadblocks in Madison County

from 2012 - 2017. He claims he converted address information for 2,004 roadblock locations into geocoded geographic coordinates for precise mapping. Once geocoded, he claims, he was able to assign each roadblock to one of Madison County's 21 census tracts. From there, he totaled the number of roadblocks in each census tract to conduct his analysis.

There is very limited information about how Dr. Ricchetti converted law enforcement records into geographic coordinates. (Ex. 4, Funderburk Report ¶10). Dr. Ricchetti's entire statistical analysis depends on his ability to reliably and accurately assign roadblocks to one of Madison County's 21 census tracts.   (Ex. 3, Steward Report ¶¶23-25). As detailed in the report by Defendants' geographer, Dr. Ricchetti did not properly geocode roadblocks to census tracts. (Ex. 4, Funderburk Report).

Geocoding Roadblock Locations[1]

Dr. Ricchetti identified three sources of roadblock information: the Computer Aided Dispatch ("CAD") file (1,697 roadblocks), handwritten notes by MCSD's DUI unit (161 roadblocks), and incident reports selected by Plaintiffs' counsel (146 roadblocks). (Ex. 1, Ricchetti Report, ¶38 fn.23). He combined these into a single dataset, along with date and the original "address information."[2] (Ex. 1, ¶23). The original addresses from MCSD files were labeled by Dr. Ricchetti as "original addresses" and were processed into new addresses entitled "cleaned

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[1]   Geocoding refers to a variety of processes wherein addresses and location information are assigned geographic coordinates, e.g., longitude and latitude.

[2]   In his report, Dr. Ricchetti explains that "I convert[ed] the addresses into longitude and latitude coordinates. Only roadblocks for which an accurate set of coordinates can be determined are used in my analysis." (Ex. 1 at 11, fn. 14). However, when questioned at his deposition, he admitted that he did not personally do any of the geocoding (Tr. 163:5-6) and, thus, was unable to provide any details about the geocoding process. Neither he nor any of the Cornerstone team members he identified are geographers. (Tr. 196:4-14). Plaintiffs have not identified anyone with expertise to extrapolate reliable geocoding locations from the limited address information available.

addresses."(*Id.*).[3] Of the roadblocks reviewed, less than 7% of the addresses included actual street numbers (i.e., postal addresses), leaving the other 93% with generic intersection information, i.e., intersection-only addresses.   (Ex. 4, Funderburk Report ¶45).   During his deposition, Dr. Ricchetti could not explain the address "cleaning" process or virtually any other aspect of the geographic analysis required to convert MCSD's records into geographic coordinates. Notwithstanding Dr. Ricchetti's inability to explain, it appears that the cleaned addresses were entered into a computer program called ArcGIS.[4] (Ex. 3, ¶29). ArcGIS then rendered geocoded (i.e., plotted) locations, assigning longitude and latitude coordinates. (Ex. 2, Ricchetti Tr. 167:2-68:15).

Dr. Ricchetti assumed that the roadblocks identified by intersection-only addresses were actually located in middle of an intersection. (Ex. 2, Ricchetti, Tr. 183:7-9). He did not make any effort to understand the data or otherwise verify it before or after geocoding. (Ex. 2, Ricchetti Tr. 172:22; 173:16-23; 174:18; and 196:1; and Ex. 4, Funderburk Report ¶60). Thus, he would not have been able to determine whether the address information maintained by the MCSD reflected the actual physical location of the roadblock or a generalized location called in by officers and transcribed by police dispatchers.[5]   Locations called in by MCSD deputies are not precise locations, but rather on-the-go generalized descriptions of an officer's location so dispatch and

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[3]   Ricchetti's report contains virtually no information on the complex process related to preparing a large number of addresses for geographic analysis. Defendants' geographer attempted to interpret, replicate, and explain Dr. Ricchetti's methods of what he did with addresses. (Ex. 4, Funderburk Rep. ¶¶21-29). Whatever Dr. Ricchetti had done to the data in order to geocode, it did not resolve the fundamental problems created by his efforts to extrapolate specific coordinates from general address information. (Ex. 4, Funderburk Rep. ¶28).

[4]   ArcGIS is sophisticated geographic information system software used for a variety of geographic based analysis. It is very complicated and, in terms of conducting complex geocoding tasks, requires technical expertise. (Ex. 4, ¶¶39-40)

[5]   His personal verification would not have helped at all since Dr. Riccehtti did not review any depositions or otherwise familiarize himself with Madison County. (Ex. 2, Ricchetti Tr: 92:24-93:20; 97:8-22; 101:5-7; and 164:12-17).

their fellow officers can locate them in an emergency. (Ex. 6, Sandridge Decl., ¶7; Ex. 7.,
Thompson Dec., ¶ 6).[6] In actual practice, many times roadblocks are located on one of several
streets approaching intersection and deputies use intersection as a reference for the roadblock
locations. (Ex. 6, Sandridge Decl., ¶16; Ex. 7., Thompson Dec., ¶ 14). In these instances, where
intersections are used as the location, the computer will assume the roadblock is in the center of
the intersection. Since intersections and roads are often the borders of census tracts, and Dr.
Ricchetti did not confirm the actual location of the roadblock in connection to the intersection, his
assignments of roadblocks to census tracts is not reliable. Dr. Ricchetti, in fact, took no steps to
verify the accuracy of the geocoded addresses.[7] (Ex. 2, Ricchetti Tr. 172:22; 173:16-23; 174:18;
and 196:1; Ex. 4, Funderburk Report ¶¶32-33; and 60-70).

Dr. Ricchetti had ArcGIS assign each geocoded location to one of Madison County's 21
census tracts. (Ex. 1, Ricchetti Report ¶38). Based on his assumed census tract assignments, Dr.
Ricchetti then totaled up all the roadblocks from 2012 – 2017 in each of the census tracts.
Ricchetti's analysis did not account for the unique nature of this project. (Ex. 2, Ricchetti
Tr.178:4). Most census tract boundaries are set in the middle of roads, which is, of course, where
roadblocks are located. (Ex. 4, Funderburk Report ¶51; Ex. 3, Steward Report ¶¶ 41-42). Thus,
even if Dr. Ricchetti had accurately geocoded roadblock locations, which he did not, his roadblock
census tract assignments did not account for the fact that many roadblocks straddled two different
census tracts. In some cases, without explanation, Dr. Ricchetti *assigned roadblocks at the same
location or along the same street census boundary line to different census tracts*. (Ex. 4,
Funderburk, ¶ 48(b) and (g), and Exhibits 2 and 7; Ex. 6, Sandridge Decl., ¶¶19 and 24, Exhibit

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[6]   Lt. Sandridge oversees MCSD's DUI Unit. Deputy Thompson is one of the DUI unit's officers.
[7]   His only quality measure was to utilize a feature in ArcGIS called "match score," which does not
do what Dr. Ricchetti thinks it does. (Ex. 2, Ricchetti Tr. 168:12). (Ex. 3, Funderburk Rep. ¶¶ 32, 60-70).
Whatever quality measures Dr. Ricchetti thinks he used, they did not work.

Nos. 2 and 7; Ex. 7., Thompson Dec., ¶¶18 and 23, Exhibit Nos. 2 and 7). Defendants' expert Mr.

Funderburk estimated that at least 82 roadblock locations, which accounted for at least 662 of the

2,004 roadblocks identified by Dr. Ricchetti straddled two or more census tracts.[8]   (Ex. 4,

Funderburk Report ¶ 57). Dr. Ricchetti's census tract assignments did not account for any of the

straddling roadblocks. (Ex. 4, Funderburk Report ¶¶ 51-55).

The accuracy of the geolocation and subsequent census tract assignment is crucial to

whether Dr. Ricchetti can perform a reliable statistical analysis of roadblock locations. (Ex. 3, Dr.

Steward, ¶¶23-25).

Dr. Ricchetti's Two-Part Analysis

The first part of Dr. Ricchetti's analysis is set forth in § 4.1, wherein he discusses different

calculations he made based on his interpretation of the compiled data. (Ex. 1, Ricchetti Report

¶¶35-41).   After he assigned roadblocks to census tracts, he classified 11 census tracts as

"predominantly White communities" and the remaining 10 as "predominantly Black

communities." (Ex. 1, Ricchetti Report ¶31-34, fn. 20). He does not provide any support for his

threshold for dividing the census tracts into the race-based categories. As explained by Dr.

Steward, Defendants' expert, Dr. Ricchetti's threshold is unreliable and without support. (Ex. 3,

Steward Report ¶¶17-18). By picking his threshold, Dr. Ricchetti's report makes it appear that

more roadblocks occur in Black areas, when in fact that is not the case. (Ex. 3, Steward Report

¶¶36-38). In fact, if he had used a more generally accepted threshold, i.e., 50%, he would have

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[8]   This calculation is based on two of Dr. Ricchetti's 3 roadblock datasets, which Mr. Funderburk
refers to as "Compiled Unique Roadblocks." This list includes 1,697 CAD roadblocks and 146 Additional
Roadblocks, totaling 1,843 roadblocks from 2012 through 2017. Based on Dr. Ricchetti's report, these
roadblocks were at 361 unique locations in Madison County. These roadblocks are sorted by frequency
and listed in APPENDIX D to Mr. Funderburk's report. This list does not include the 161 handwritten
roadblocks used by Dr. Ricchetti and referenced in footnote 23 of his report. (Ex. 4, Funderburk Report
¶38).

seen that the number of roadblocks in low Black population areas exceeded the number of roadblocks in high black population areas. (*Id.* ¶37). Dr. Ricchetti's ad hoc assumption that police racial bias appears when census tracts achieve a Black population of 46.2% is inconsistent with generally accepted research on police racial profiling and bias. (*Id.*)

The second part of Dr. Ricchetti's analysis presents the findings under his regression analysis, which is set forth in § 4.2, evaluating the relationship between race and roadblocks. (Ex. 1, Ricchetti Report ¶¶ 44-53). This analysis also depends on his census tract assignments for each of the 21 census tracts over the course of five years (i.e., 126 observations). (Ex. 3, Steward Report ¶¶23-25). Ricchetti's deposition testimony (Ex. 2, Ricchetti Tr. 225:10-14) and his statistical analysis in his report confirm that DUI enforcement is the predominant factor in selecting roadblock location. (Ex. 3, Steward Report ¶¶ 11 and 20). A closer examination of Ricchetti's findings show that there is no statistical difference between the number of roadblocks areas of high and low Black population. (Ex. 3, ¶12). Dr. Ricchetti's findings show that a census tract that has a 1% increase in Black population will take sixteen years for that tract to have one additional roadblock. (Ex. 3, ¶19).

II.   Argument

Even though. Dr. Ricchetti confirms that race is not a factor in the placement of roadblocks (Ex. 3, Steward Report ¶¶ 62-75), his report and testimony must be excluded. Dr. Ricchetti's geocoding process was arbitrary, manifestly incorrect, and failed to meet the analytical rigor expected from experts under Rule 702 and *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993). Dr. Ricchetti's method for processing roadblock locations renders his entire analysis unreliable and inadmissible. (Ex. 3, Steward Report ¶¶ 23-32; Ex. 4, Funderburk Report ¶¶13-19). The roadblock address information maintained by MCSD does not contain sufficient information

by which the actual location of each roadblock can be identified. This cannot be overcome by using arbitrary assumptions he used here. His analysis, therefore, is based upon unsupported assumptions, insufficient facts, the product of unreliable methods, and unreliably applied methods. *Fed. R. Evid. 702*.   His analysis is unreliable and, by his own admission, does not address whether the MCSD locates roadblocks for racial reasons. (Ex.2, Ricchetti Tr. 226:13-22).

A.   Standards for Admissibility of Expert Testimony

Federal Rule of Evidence 702 sets forth the requirements for admissibility of expert testimony. It states:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

1. The Court's Role as Gatekeeper

The Court must fulfill a vital "gatekeeping role" that requires the Court to make a threshold assessment as to "whether the reasoning or methodology underlying the [expert] testimony is scientifically valid and of whether that reasoning and methodology properly can be applied to the facts in issue." *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 592-93 (1993). Throughout the evaluation, "the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable." *Id.* at 589. These "exacting standards of reliability" require far "more than subjective belief or unsupported speculation." *Weisgram v. Marley Co.*, 528 U.S. 440, 442 (2000); *Daubert*, 509 U.S. at 590. The Court has "considerable leeway in deciding

in a particular case how to go about determining whether particular expert testimony is reliable."
Kuhmo Tire Co. v. Carmichael, 526 U.S. 137, 152 (1999).

"[A]n expert's opinion must have some basis other than hypothesis before the opinion may
have the privilege of being assailed by cross-examination." *Porter v. Whitehall Labs.*, 791 F. Supp.
1335, 1345, n.10 (S.D. Ind. 1992) (emphasis in original), aff'd, 9 F.3d 607 (7th Cir. 1993).

Plaintiffs, as the proponents of the expert evidence to be provided by Dr. Ricchetti, bear
the burden of showing that it is admissible. *See Mathis v. Exxon Corp.*, 302 F.3d 448, 459-60 (5th
Cir. 2002); *Tamer v. Westbrook*, 174 F.3d 542, 547 (5th Cir. 1999) (superseded on other grounds)
(citation omitted); *see also Daubert*, 509 U.S. at 592, n.10. Defendants do not bear the burden of
demonstrating its inadmissibility.   *See Rieger v. Orlor, Inc.*, 427 F. Supp. 2d 99, 102 (D. Conn.
2006); *Soldo v. Sandoz Pharms. Corp.*, 244 F. Supp. 2d 434, 526 (W.D. Pa. 2003).

Determining whether a witness is qualified as an expert necessitates "comparing the area
in which the witness has superior knowledge, skill, experience or education with the subject matter
of the witness's testimony." *Carroll v. Otis Elevator Co.*, 896 F.2d 210, 212 (7th Cir. 1990); *see
also Edmonds v. Ill. Cent. Gulf R.R. Co.*, 910 F.2d 1284, 1287 (5th Cir. 1990); *In re Air Crash
Disaster*, 795 F.2d 1230, 1233-34 (5th Cir. 1986). Rule 702 requires the witness's special
knowledge or experience to match the subject matter of his or her testimony. *See Berry v. City of
Detroit*, 25 F.3d 1342, 1351 (6th Cir. 1994).

2. The Expert's Methodology.

In performing its threshold screening function under *Daubert*, district courts must confirm
the reliability of an expert's methodology. For every conclusion contained in an expert's proposed
testimony, a court must determine if the methodology leading to that conclusion is sound. *See
Allen v. Pa. Eng'g Corp.*, 102 F.3d 194, 196 (5th Cir. 1996).

As the Supreme Court explained in *Kumho Tire*, "the importance of *Daubert's* gatekeeping requirement ... is to make certain that an expert. . . employs in the courtroom the same level of intellectual rigor that characterizes the practice of the expert in the relevant field." *Kumho*, 526 U.S. at 152. The Court should consider whether the expert has been as careful "as he would be in his regular professional work outside his paid litigation consulting." *Sheehan v. Daily Racing Form, Inc.*, 104 F.3d 940, 942 (7th Cir. 1997) (noting that financial incentives may induce an expert in litigation into considering looser standards to apply that he would otherwise in the context of his professional work outside of litigation).

Indeed, "the abuse, or one of the abuses, at which *Daubert* and its sequelae are aimed...is the hiring of [experts] to testify for a fee to propositions that they have not arrived at through the methods that they use when they are doing their regular professional work rather than being paid to give an opinion helpful to one side in a lawsuit." *Braun v. Lorillard Inc.*, 84 F.3d 230, 235 (7th Cir. 1996).

3. The Data Utilized By the Expert.

"Expert testimony is inadmissible if it is speculative, unsupported by sufficient facts, or contrary to the facts of the case." *Marmo v. Tyson Fresh Meats, Inc.*, 457 F.3d 748, 757 (8th Cir. 2006). Moreover, "[a] liability expert is only helpful to the fact finder if he is able to establish such an element of the claim through visual inspection, independent research, testing, and knowledge." His "background information" must not be "so sadly lacking as to be mere guesswork." *Clark v. Takata Corp.*, 192 F.3d 750, 757 (7th Cir. 1999); *Allen*, 102 F.3d at 199. *Daubert* requires trial courts to ensure that the underlying facts and/or data upon which a proffered expert's opinions are based are reliable in and of themselves. *See Allen*, 102 F.3d at 196; *Daubert*, 509 U.S. at 595. If an expert's opinion is based on unreliable facts, the opinion must be excluded.

See Brown v. Parker-Hannifin Corp., 919 F.2d 308, 311 (5th Cir. 1990); *In re TMI Litig.*, 193 F.3d 613, 697 (3d Cir. 1999); *Montgomery Cty. v. Microvote Corp.*, 320 F.3d 440, 448 (3d Cir. 2003).

4. The Analytical Gap.

A court may appropriately exclude expert testimony where it finds that an expert has extrapolated data, and there is "too great an analytical gap between the data and the opinion proffered." *General Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997); *Moore*, 151 F.3d at 279. District courts must ensure that the "factual basis, data, principles, methods, [and] their application" are sound, *Kumho Tire*, 526 U.S. at 149.

B.   **Dr. Ricchetti's Analysis Is Based Upon Unreliable Geocoding and Census Tract Assignments.**

Dr. Ricchetti's whole analysis is premised on the belief that he accurately and reliably geocoded roadblock locations using the MCSD's law enforcement records, and that he accurately and reliably assigned each to a census tract. As explained in detail by Defendants' geographer, Dr. Ricchetti failed at both tasks. (Ex. 4, Funderburk Report ¶¶ 43-91). Along with Mr. Funderburk, two members of MCSD's DUI unit, provide 11 examples of erroneously geocoded locations or erroneous census tract assignments. (Ex. 4, Funderburk Report ¶¶ 48(a)-(g); Ex. 6, Sandridge Decl., ¶¶17-27; Ex. 7. Thompson Dec., ¶¶ 16-26). Dr. Ricchetti performed no reliable review or verification of the data before providing opinions. (Ex. 4, Funderburk Report ¶55). In fact, at his deposition he admitted that he needed to go back and review his analysis in light of the issues discussed below. (*Id.*; Ex. 2, Ricchetti Tr.177:21; 204:15). Because many roadblocks occur on census tract boundary lines, minor errors can change the location and census tract assignment. As discussed in Mr. Funderburk's report, however, these are not minor errors. These errors are propagated throughout Dr. Ricchetti's geographic analysis. Some geocoded locations are off by 2.35 miles. (Ex., 4, Funderburk Report ¶48(i)). His geographic analysis is completely invalid and

unreliable.[9]   His statistical analysis, which is based on his geographic analysis, is based on

insufficient facts or incorrect assumptions that fail to satisfy Fed. R. Evid. 702.

1. The Roadblock Location Information Dr. Ricchetti Used Is Not Collected With Sufficient Specificity To Allow For Geocoding.

Dr. Ricchetti could not have followed any generally accepted methodology to geocode

roadblock locations because the generic address descriptions maintained by MCSD do not provide

sufficiently specific information from which to geocode. (Ex. 4, Funderburk, ¶¶44-50; 84). It is

impossible to geocode the actual location of a roadblock using only the name of a nearby

intersection. (*Id.*). In essence, Dr. Ricchetti contends that he transformed generalized location

descriptions maintained for law enforcement purposes into specific descriptions to accommodate

geographic analysis. The MCSD does not maintain roadblock location records using adequate

location information for the complex geographic analysis. (Ex. 6, Sandridge Decl., ¶7; Ex. 7.,

Thompson Dec., ¶ 6). As might be expected, MCSD only maintains records for law enforcement

purposes, not for geographic analysis. (*Id.*). MCSD personnel in the field are not concerned with

census tract boundaries (or the potential need to someday geocode roadblock locations) when

calling in roadblock locations to dispatch. Likewise, MCSD's dispatch does not transcribe calls

from the field into more precise addresses necessary to facilitate geographic analysis.   Dr.

Ricchetti's statistical analysis is form over a process fundamentally grounded in an arbitrary

assignments of roadblock locations to census tracts. The errors in his geographic analysis

contaminate his statistical analysis. Garbage in, garbage out.[10]

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[9]   This also assumes Dr. Ricchetti is qualified under Rule 702 to conduct the geographic analysis he claims he conducted.

[10]   "Garbage in, garbage out" is well-known computer axiom "meaning that if invalid data is entered into a system, the resulting output will also be invalid. Although originally applied to computer software, the axiom holds true for all systems, including, for example, decision-making systems." *United States v. Coriaty*, 300 F.3d 244, 256 (2d Cir. 2002).

As noted above, Dr. Ricchetti compiled his roadblock information from three sources. A review of two of these sources (the 1,697 CAD roadblocks and 146 incident report roadblocks) shows many of the roadblock locations had inadequate address information.[11]   From these two sets, there are 361 unique roadblock locations identified. (Ex. 4, Funderburk Report ¶45). Only 24 of the 361 locations contain a street numbered address. (*Id.*). This means that for approximately 93.4% of the roadblock locations, Dr. Ricchetti *assumed* the roadblock location was in the middle of the intersection.   (Ex. 4, Funderburk Report ¶50). While some of roadblocks are located at intersections, many times the names of street intersections are simply references for roadblock locations, and the actual roadblocks are at one of the approaches at varying distances from the intersection. (Ex. 6, Sandridge Decl., ¶16; Ex. 7., Thompson Dec., ¶ 14). Since intersections and roads are often the borders of census tracts, and Dr. Ricchetti did not confirm the actual location of the roadblock in connection to the intersection, his assignments of roadblocks to census tracts is not reliable. Notwithstanding the question of whether Dr. Ricchetti is competent to conduct the analysis he claims he did here, no one could have accurately geocoded the locations and assigned them to census tracts given the address information provided and without verifying the location.

This error by Dr. Ricchetti is not hypothetical. Lt. Sandridge, Deputy Thompson, and Mr. Funderburk have all identified at least 10 of material errors in the geocoding and census tract assignment to illustrate that these errors are propagated throughout Dr. Ricchetti's analysis. (Ex. 4, Funderburk Report ¶¶ 48(a)-(g); Ex. 6, Sandridge Decl., ¶¶17-27; Ex. 7., Thompson Dec., ¶¶ 16-26).   Some these examples include: [12]

▪ Roadblock locations geocoded in several different locations near the Reservoir, some as much as 0.50 miles from the actual location. (Exhibits 1 and 2);

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[11]   These examples are taken from the "Compiled Unique Roadblocks" referenced in Mr. Funderburk's report.   (Ex. 4, Funderburk, Appendix D).
[12]   The exhibit numbers referenced in this summary are attached to the Declaration of Mark Sandridge, Declaration of Rylon Thompson, and William Funderburk's report.

- Several locations on the Natchez Trace that are geocoded on Highway 51 by Dr. Ricchetti. (Exhibit 3);

- Two locations along Yandell road, straddling two census tracts, are arbitrarily assigned to two different census tracts. (Exhibit 5);

- Several roadblock locations on Yandell Road that are geocoded to locations in the vicinity of Madison Crossing Elementary School, but none at the actual school where roadblocks are set up. (Exhibit 6);

- Even where roadblocks are actually located at an intersection, Dr. Ricchetti's analysis arbitrarily assigns the roadblocks to different census tracts. (Exhibit 7);

- A roadblock location on Lake Harbor Drive near the Spillway is geocoded behind North Park Mall. (Exhibit 8);

- A roadblock that is identified as being near Madison Ridgeland Academy (MRA), is geocoded in Ridgeland, rather than Madison, where MRA actually is. It was plotted about 2.35 miles from the accurate location. (Exhibit 9); and

- A roadblock located in the middle of a wildlife refuge. (Exhibit 10).

Knowledge of the location of each roadblock, and a grasp of how accurately to geocode and assign each to census tracts, are the minimum facts and data required to provide the opinion testimony Dr. Ricchetti seeks to give here. Dr. Ricchetti could not have applied a methodology reliably to the facts of this case or formed a reliable opinion that satisfies Rule 702. When questioned about his geocoding methodology, Dr. Ricchetti simply admitted that he did not do the geocoding. (Ex. 2, Ricchetti Tr. 163:6). To date, Defendants still do not know who did.

2. Ricchetti's Census Tract Assignments Did Not Account For the Fact That Roadblocks Commonly Straddle Two or More Census Tracts.

Even assuming Dr. Ricchetti did accurately geocode the locations, which he did not, he did not apply reliable principles and methods to his process of assigning roadblocks to census tracts. (Ex. 4, Funderburk Report ¶¶51-59). Specifically, his methodology fails to account for unique geocoding issues related to roadblocks. (*Id.* ¶51). Census tract lines generally follow permanent,

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visible features, such as streets, roads, and highways. (*Id.* ¶51). Because census tracts boundaries

commonly run along roads, the middle or centerline of a roadway is the dividing line between two

census tracts. (*Id.*). Thus, the roadblocks that Dr. Ricchetti has attempted to geocode by their very

nature straddle two or more census tracts. (*Id.*) His methodology does not account for this. (Id. ¶

52). Rather, he simply relied on ArcGIS to assign whole roadblocks to one of the straddled census

tracts. (*Id)*. This led to the above-discussed arbitrary outcome where two sets of roadblocks located

at the same location were assigned to two different census tracts, and two sets of roadblocks

straddling the same census tract boundary line were assigned to two different census tracts.

Dr. Ricchetti acknowledged during his deposition that analyzing roadblock locations raises

unique issues given that many of the locations by their very nature exist along census tract

boundary lines. (Ex. 2, Ricchetti Tr. 178:4).   Dr. Ricchetti could not explain how ArcGIS made

its assignment, though he was confident that ArcGIS assigned each whole location to a specific

census tract. (Ex. 2, Ricchetti Tr. 179:10-79:20 and 203:20).   From Mr. Funderberk's review of

the data, he identified no less than 82 of 361 roadblock *locations* that straddle two or more census

tracts. (Ex. 4, Funderburk Report ¶¶57-58). These locations account for 662 of the 1,843 actual

roadblocks identified from the CAD file and the incident reports. (*Id.*). Thus, rather than

developing a repeatable, transparent, and consistent method for handling straddling roadblocks,

which ensured accuracy and precision, Dr. Ricchetti just arbitrarily guessed on the census tract

assignments for an estimated 36% of all roadblocks in Madison County.   (Ex. 4, Funderburk

Report ¶¶57-58).

Assigning 100% of every straddling roadblock to one census tract is arbitrary, speculative,

and manifestly incorrect. More importantly, it demonstrates that Dr. Ricchetti's opinions fail the

requirements for admissibility under Rule 702.   If Plaintiffs want to use roadblock locations to

show that Sherriff Tucker targets minorities, their data needs to accurately reflect MCSD's practices. Unquestionably, they do not do that here. Dr. Ricchetti's explanation of geocoding reveals an insufficient understanding of the facts required to form a reliable analysis. His statistical analysis relies on arbitrary assumption that 662 roadblocks occurred in only one census tract, when the actual data shows otherwise.[13] As such, his model this injects further error into Dr. Ricchetti's analysis. (Ex. 3, Steward Report ¶¶41 and 42).

C.   Dr. Ricchetti's Arbitrary Threshold For Dividing Census Tracts Hides The Fact That Roadblocks In Areas with Low Black Population Actually Exceeds Roadblocks in Areas with High Black Population.

As discussed above, Dr. Ricchetti relied on an arbitrary threshold for separating Madison County's 21 census tracts into White and Black categories. He cites no support for his decision to use 46.2% as the threshold for when a census tract should be considered Black. (Ex. 3, Steward Report ¶¶ 17-18, 34). In fact, that threshold is inconsistent with the claims and arguments from the Plaintiffs throughout their motion for certification. (Dkt. # 232 at 20) ("The MCSD Disproportionately Conducts Roadblocks In Majority Black Neighborhoods."). Thus, while Plaintiffs allege discrimination in majority-Black areas, Dr. Ricchetti analyzes predominantly-Black areas. This subtle difference materially changes the results of Dr. Ricchetti's §4.1 analysis.

As explained in detail by Dr. Steward, if Dr. Ricchetti had not applied an arbitrary, ad-hoc threshold, and adopted a generally accepted threshold of 50%, he would have found that the number of roadblocks in the areas with low Black population actually exceeded the number of roadblocks in the areas with high Black population. (Ex. 3, Steward Report ¶ 35-36). Exhibit 5 illustrates how the threshold materially altered the number of roadblocks in "Black" census tracts.

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[13]   When asked to explain his roadblock assignment, Dr. Ricchetti conceded his roadblock census tract assignments were "estimates of roadblocks in each census tract." Ex. 2, Ricchetti Tr. 173:12. Based on Mr. Funderburk's analysis, the "estimates" were actually guesses.

(Ex. 5, Table of Roadblock Census Assignments). By defining Black neighborhoods to include census tracts where the Black population is only a plurality (i.e., not a real majority), he classifies three additional census tracts as "Black communities" and is able to move 300 roadblocks from "White communities" to "Black communities." Those tracts are 301.05, 301.06, and 303.02, which are predominantly, but not majority, Black. By focusing on "predominantly black" and including those three census tracts into the "Black" category, Dr. Ricchetti is able to capture and an additional 300 roadblocks in the "predominantly black category."[14] This threshold is arbitrary, unsupported, and misleading, it should be excluded.

D.   Both the Judiciary and Academia Have Rejected The Use of Census Benchmarking to Show Policing Bias.

A fundamental flaw in Dr. Ricchetti's analysis is that he uses residential population as a proxy for drivers on the road. Such census benchmarking has been roundly rejected by the courts and researchers. It is not a generally accepted method for studying traffic enforcement and has been the subject of intense scrutiny for decades. (Ex. 3, Steward Report ¶ 10). It has been debunked for years. (Ex. 3, Steward Report ¶¶47-52). A proper study requires consideration of contextual factors, such as traffic patterns, nightlife, commuter, and other factors that influence drivers. (Ex. 3, Steward Report ¶¶39, 48-52). MCSD maintains that it sets up roadblocks in order to catch impaired drivers. (Ex. 6, Sandridge Decl. ¶12; Ex. 7, Thompson Decl., ¶ 11). To evaluate that claim Dr. Ricchetti needed to develop a model and benchmark that considered all the contextual factors relevant to catching impaired drivers and the profile of drivers on Madison County's roads. (Ex. 3, Steward Report ¶ 16; 47-48). However, his analysis does not even pretend to consider the location of bars, restaurants, nightlife, and entertainment areas. (Ex. 3, Steward Report ¶¶48-52).

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[14]   Under Dr. Ricchetti's threshold, there are 1,200 roadblocks in predominantly Black tracts and 804 in predominantly White tracts.   Under a 50-percent threshold, there would be 900 roadblocks in predominantly Black tracts and 1,104 in predominantly White tracts. (Ex. 5, Table of Census Assignments)

He does not consider recreation areas, such as the Reservoir, where MCSD regularly sets up roadblocks to catch impaired drivers. (Ex. 3, ¶52). These are exactly the areas that MCSD considers when targeting impaired drivers. (Ex. 6, Sandridge Decl. ¶¶8-10; Ex. 7, Thompson ¶¶7-9).

Without any evidence of similarly situated groups, raw statistics are not proof of discriminatory intent. *U.S. v. Bass*, 536 U.S. 862 (2002) (involving a claim of selective prosecution). To support a finding of discrimination, the statistics must show that similarly situated individuals of another race were treated differently than Plaintiffs. *United States v. Armstrong*, 517 U.S. 456, 465 (1996); and *Chavez v. Illinois State Police*, 251 F.3d 612, 638 (7th Cir. 2001) ("Of course, parties may not prove discrimination merely by providing the court with statistical analyses. The statistics proffered must address the crucial question of whether one class is being treated differently from another class that is otherwise similarly situated.").

Most recently, the Middle District of North Carolina ruled that census benchmarking was unhelpful in determining whether a local sherriff's department was engaged in selective law enforcement against minorities. *United States v. Johnson*, 122 F. Supp. 3d 272 (M.D.N.C. 2015). Though the court ultimately ruled against the DOJ in *Johnson*, it accepted the DOJ's argument that defendant-sheriff's census benchmarking was unreliable and likely to leads to erroneous results. *Id*. at 359.   Where statistics are used for the presumption that violations are committed proportionately by all races, the Supreme Court has rejected this presumption as "at war" with unchallenged statistics. *Armstrong*, 517 U.S. at 470 (holding that any presumption that all races commit all types of crimes at the same rate is fundamentally flawed).

Dr. Ricchetti does not cite any authority to support his use census benchmarking. In fact, the authority he does cite rejects the use of census data to analyze the driving population: "For a

variety of reasons, [census benchmarking] is of no scientific value for purpose of trying to measure racial biasing in policing and, in fact, has very often resulted in misleading and unsupported findings." (Ex. 8, Lorie Fridell, *By the Numbers: A Guide for Analyzing Race Data from Vehicle Stops* (2004), p. viii). Another authority cited by Dr. Ricchetti explains why census benchmarking disfavored:

> The primary reason for using US Census data to form the benchmark is that it is inexpensive, quick, and readily available. A number of studies attempting to assess racial bias in police behavior use population data from the census, some rely on estimates at local area levels like neighborhood census tracts (see Parker and Stults in this volume). However, for the reasons previously listed, benchmarking with census data does not help us isolate the effect of racial bias from differential exposure and differential offending. Even refinements to the residential census, such as focusing on subpopulations likeliest to be involved in crime (e.g., men or driving age young adults) are not likely to eliminate differences in the exposure of officers to criminal suspects or provide a good approximation of the population at risk for official police action. Fridell summarized the problem with using the census as a benchmark with regard to offender exposure by noting that, "this method does not address the alternative hypothesis that racial/ethnic groups are not equivalent in the nature and extent of their . . . law-violating behavior" (p. 106, emphasis in original).
>
> Census estimates provide only the racial distribution of residents and not how these numbers vary by time of day, business attractors such as shopping centers, daily traffic patterns involving commuters, etc. It is quite conceivable that the residential population in many neighborhoods has little resemblance to the patterns of people on the street during the day or night. Even if refinements in the census to the neighborhood or age-prone population at risk for police involvement could give a racially unbiased estimate of the population at risk for police contact, the differences between the residential population and the population at different times of the day and street segments are likely to overwhelm such an estimate.

(Ex. 9, Ridgeway, Greg, and John MacDonald, "Methods for Assessing Racially Biased Policing," Race, Ethnicity, and Policing: New and Essential Readings, Infrastructure, Safety, and Environment, NYU Press, 2010, p. 5).

Ricchetti uses residents, not drivers, as his benchmark. Census data provides information on *residents*, not *drivers*. (Ex. 3, Steward Report ¶¶10, 13, 39, and 43). Dr. Ricchetti's analysis

projects and assumes that the racial distributions of residents matches that of drivers. Drivers are an inherently transient population and the racial composition of drivers differs from the residential population for a variety of reasons such as the location of major employers, retail areas, entertainment areas, and recreational areas. (Ex. 3, Steward Report ¶¶48-52; Ex. 8, Lorie Fridell, *By the Numbers: A Guide for Analyzing Race Data from Vehicle Stops* (2004), p. 17).   Moreover, census data is not just unreliable as a benchmark for the driving population, it is also unreliable as to the actual residents also. (Ex. 3, Steward Report ¶¶46-48). Census tract data by its very nature assumes the population within the tract is homogenized and that the racial distribution of the population is even within in the tract. (Ex. 3, Steward Report 43). That is plainly not the case in Madison County, which is best illustrated by Exhibit 12 through 14. (Ex. 4, Funderburk Report Exhibit 12 - 14). These two exhibits depict census tract boundaries with the underlying census blocks color coded to illustrate census blocks that have a majority Black population. Census tracts have considerable variation in the distribution of White and Black residents.

E.   **The Outcomes of Dr. Ricchetti's Regression Analysis Are Not Probative Since They Could be the Result of Random Chance**.

As Dr. Steward explains, regression analysis is of no benefit if the outcomes are equally as likely to be the result of random chance. (Ex. 3, Steward Report ¶¶ 64-67). This is the case with Dr. Ricchetti's analysis. Thus, it is of no probative weight, even overlooking the glaring errors in his methodology or the unreliable nature of his data.

CONCLUSION

Defendants respectfully request an order from this Court striking Dr. Bryan Ricchetti's March 13, 2018 report and disallowing any testimony he proposes to give. Dr. Ricchetti's analysis and opinions about roadblocks should be excluded under Fed. R. Evid. 104, 401, 403, and 702.

Respectfully submitted this 8th day of May, 2018.

MADISON COUNTY, MISSISSIPPI and
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HIS OFFICIAL CAPACITY

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CERTIFICATE OF SERVICE

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So, certified this the 8th day of May, 2018.

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